Title: Spaces of continuous functions with the pointwise topology
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Abstract: This thesis describes properties of spaces of continuous functions with the topology of pointwise convergence. Emphasis is put on characterizations of compact subsets of such spaces and on compactness of the spaces themselves. The thesis describes properties of the class of angelic spaces (notion by Fremlin) and shows when spaces of continuous functions with pointwise topology belong to this class (result by J. Orihuela). Thus a generalization of a theorem of Grothendieck is obtained. Also a limitation of the class of angelic spaces is shown – it is not closed under topological product. This leads to the next topic of the thesis, the class of strictly angelic spaces (introduced by W. Govaerts) and its intersection with the class of spaces of continuous functions with pointwise topology. In the end the thesis shows under which conditions the space of continuous functions satisfies the definition of the respective notions related to compactness.
Keywords: spaces of continuous functions; pointwise convergence; compactness; angelicity